forming a gate insulating film and an amorphous semiconductor film sequentially over the gate wiring in a film formation apparatus;

irradiating the amorphous semiconductor film with a laser light to crystallize the semiconductor film, wherein an oxide film is formed on the semiconductor film as a result of the irradiation of the laser light;

covering a first portion of the crystallized semiconductor film with a first mask;

introducing an impurity element into second portions of the crystallized semiconductor film at a first concentration through the oxide film using the first mask; and

Cont'd D1

introducing the impurity element into third portions of the crystalline semiconductor film through the oxide film using a second mask at a second concentration larger than the first concentration, wherein said second mask extends beyond side edges of the first portion,

wherein the first portion of the crystallized semiconductor film is a channel forming region while the third portions of the crystallized semiconductor film are source and drain regions, and

wherein fourth portions of the crystallized semiconductor film which are located between the first portion and the fourth portions are low concentration impurity regions.

9 ~~57~~ 8 (New). A method according to claim ~~56~~ further comprising a step of forming a silicon nitride film before forming the gate insulating film.

10 ~~58~~ 8 (New). A method according to claim ~~56~~, wherein said gate insulating film comprises BCB (benzocyclobutene).

11 ~~59~~ 8 (New). A method according to claim ~~56~~, wherein the impurity is at least one selected from the group consisting of a trivalent impurity and a pentavalent impurity.

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~~60~~ (New). A method according to claim ~~56~~ 8, wherein said semiconductor film is irradiated with the laser light in an oxidizing atmosphere.

13
~~61~~ (New). A method of fabricating a semiconductor device comprising:

forming a gate wiring over a substrate;

forming a gate insulating film and an amorphous semiconductor film sequentially over the gate wiring in a film formation apparatus;

crystallizing the amorphous semiconductor film by RTA, wherein an oxide film is formed on the semiconductor film as a result of the RTA;

covering a first portion of the crystallized semiconductor film with a first mask;

introducing an impurity element into second portions of the crystallized semiconductor film at a first concentration through the oxide film using the first mask; and

introducing the impurity element into third portions of the crystalline semiconductor film through the oxide film using a second mask at a second concentration larger than the first concentration, wherein said second mask extends beyond side edges of the first portion,

wherein the first portion of the crystallized semiconductor film is a channel forming region while the third portions of the crystallized semiconductor film are source and drain regions, and

wherein fourth portions of the crystallized semiconductor film which are located between the first portion and the fourth portions are low concentration impurity regions.

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~~62~~ (New). A method according to claim 13 ~~61~~ further comprising a step of forming a silicon nitride film before forming the gate insulating film.

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15 13
~~63~~ (New). A method according to claim ~~61~~, wherein said gate insulating film comprises BCB (benzocyclobutene).

16 13
~~64~~ (New). A method according to claim ~~61~~ wherein the impurity is at least one selected from the group consisting of a trivalent impurity and a pentavalent impurity.

17 13
~~65~~ (New). A method according to claim ~~61~~ wherein said RTA is carried out in an oxidizing atmosphere.

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~~66~~ (New). A method of fabricating an EL display device comprising:

forming a gate wiring over a substrate;

forming a first gate insulating film, an amorphous semiconductor film and a second insulating film sequentially over the gate wiring in this order in a film formation apparatus;

irradiating the amorphous semiconductor film with light to crystallize the semiconductor film through the second insulating film;

covering a first portion of the crystallized semiconductor film with a first mask;

introducing an impurity element into second portions of the crystallized semiconductor film at a first concentration using the first mask; and

k introducing the impurity element into third portions of the ~~crystalline~~ crystallized semiconductor film using a second mask at a second concentration larger than the first concentration, wherein said second mask extends beyond side edges of the first portion,

wherein the first portion of the crystallized semiconductor film is a channel forming region while the third portions of the crystallized semiconductor film are source and drain regions, and

wherein fourth portions of the crystallized semiconductor film which are located between the first portion and the ~~fourth~~ third portions are low concentration impurity regions.

~~67~~ 19 (New). A method according to claim ~~66~~ 18, wherein said light is a laser light.

~~68~~ 20 (New). A method according to claim ~~66~~ 18, wherein said light is irradiated by RTA.

~~69~~ 21 (New). A method according to claim ~~66~~ 18 further comprising a step of forming a silicon nitride film before forming the gate insulating film.

~~70~~ 22 (New). A method according to claim ~~66~~ 18, wherein said gate insulating film comprises BCB (benzocyclobutene).

~~71~~ 23 (New). A method according to claim ~~66~~ 18, wherein the impurity is at least one selected from the group consisting of a trivalent impurity and a pentavalent impurity.

~~72~~ 24 (New). A method according to claim ~~66~~ 18, wherein said amorphous semiconductor film is irradiated with the laser light in an oxidizing atmosphere.

~~73~~ 25 (New). A method of fabricating a semiconductor device comprising:

forming a gate wiring over a substrate;

forming a first gate insulating film, an amorphous semiconductor film and a second insulating film sequentially over the gate wiring in this order in a film formation apparatus;

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irradiating the amorphous semiconductor film with light to crystallize the amorphous semiconductor film through the second insulating film;

covering a first portion of the crystallized semiconductor film with a first mask;

introducing an impurity element into second portions of the crystallized semiconductor film at a first concentration using the first mask; and

introducing the impurity element into third portions of the crystalline semiconductor film using a second mask at a second concentration larger than the first concentration, wherein said second mask extends beyond side edges of the first portion,

wherein the first portion of the crystallized semiconductor film is a channel forming region while the third portions of the crystallized semiconductor film are source and drain regions, and

wherein fourth portions of the crystallized semiconductor film which are located between the first portion and the ~~fourth~~ third portions are low concentration impurity regions.

~~74~~ 26 (New). A method according to claim ~~73~~ 25, wherein said light is a laser light.

~~75~~ 27 (New). A method according to claim ~~73~~ 25, wherein said light is irradiated by RTA.

~~76~~ 28 (New). A method according to claim ~~73~~ 25 further comprising a step of forming a silicon nitride film before forming the gate insulating film.

~~77~~ 29 (New). A method according to claim ~~73~~ 25, wherein said gate insulating film comprises BCB (benzocyclobutene).

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